

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

AFFIDAVIT

Commissioner of Patents and Trademarks  
Washington, DC 20231

Commissioner:

I, David R. Pacholok, herewith affirm as follow.

(A) I was born on September 14, 1954; and I am a US Citizen.

(B) I presently live at 1815 W. Higgins Road, Sleepy Hollow, IL 60118.

(C) In June 1976 I received a Bachelor's Degree in Electrical Engineering from Oakland University, Rochester MI.

(D) I have practiced Electrical and Electronics Engineering since June 1977, as follows.

(1) Between September 1976 and February 1977 I did field Engineering work relating to industrial motor drives employing 3-phase current source SCR invertors for the Louis Allis Corporation of Milwaukee WI.

(2) From March 1977 to Septmber 1978 I did digital and analog intrumentation design for power system applications as a Project Engineer at Simpson Electric of Elgin, IL.

(3) From September 1978 to October 1979, while a Project Engineer at Fyrnetics Inc. of Elgin, IL, I developed various electronic ballasts for fluorescent lamps, and general RF design.

(4) From November 1979 to December 1981 while employed as an engineer at Motorola, Inc. Communications Division of Schaumburg, IL, I was responsible for base station switchmode power supply and RF power amplifier and band pass filter design. I received two patents as a result of my work at Motorola; number 4,472,672 and 4,498,056.

(5) Since January 1982 I have been self-employed as a Consulting Engineer under the business name of Creative Electronics Consultants. The mainstay of my work in this capacity has been custom switchmode power supply and electronic discharge lamp ballast design development, and

prototyping. I was granted three (3) additional US patents as a result of my consulting activities over the past six years; numbers 4,546,319, 4,613,934, 4,698,741, currently an additional patent is pending.

(E) In total, I have spent more than 10 years in the design, development, construction, testing and evaluation of electronic power supplies in general and electronic inverter-type power supplies in particular, and I have accumulated substantial experience in the art of power supplies, particularly electronic switching-type power supplies and electronic ballasts for fluorescent, Neon, and HID discharge lamps.

Consequently, I believe I have at least ordinary skill in the art of electronic inverter-type power supplies and electronic ballasts for gas discharge lamps.

(F) I have been informed to the effect:

(1) that the Commissioner rejected certain claims in an application for a patent for the reason that the Commissioner held the claimed invention to be obvious over prior art;

(2) that, as evidence of obviousness, the Commissioner cited the following prior art references, copies of which have been received by me:

US Patent No. 4,184,128 to Nilssen; and  
US Patent No. 4,008,414 to Agnew;

(3) that the Commissioner held that the cited Nilssen patent, with particular reference to Fig. 8 thereof, when considered in view of the cited Agnew patent, rendered the claimed invention obvious;

(4) that the Commissioner held that by making an obvious combination of the teachings of the Agnew patent with the teachings of the Nilssen patent, the claimed invention would result; and

(5) that the subject matter of the claimed invention pertains to the art of inverter-type power supplies and ballasting means for gas discharge lamps.

(10) I have not seen the application for patent identified in section (F) above, nor have I seen the claims thereof. More particularly, I have not received a description of the claimed invention.

(H) I have been requested:

(1) to carefully study and consider the cited references in light of the situation described in section (F) above;

(2) to identify each and every instance of what I see as an obvious improvement and/or obviously desirable modification of the circuit arrangement of Nilssen's Fig. 8 as suggested by the teachings of the Agnew patent;

(3) to express in writing each one of those obvious improvements and/or obviously desirable modifications.

(I) I have performed the study and consideration requested of me in section (H) above, having spent therefor an amount of time that I judged to be reasonable; and I herewith set forth in writing each and every one of these obvious improvements and/or obviously desirable modifications, as follow.

## OBVIOUS IMPROVEMENTS OF NILSSEN BY AGNEW

Preface: As Agnew's teachings relate to fluorscent lamp ballasting, and Nilssen Fig. 8 teaches a power supply, no direct, relavent, and obvious improvements could be found. Nilssen Fig. 3 however, teaches a ballast technology, quite relavent to Agnew, and the following comments apply:

(1) Referring to Nilssen patent #4,184,128 Fig. 3, a safety socket shorting one lamp during its removal, identified as elements 64 and 87 in Agnew drawing Fig. 1, may be employed as the socket means for either lamp 73 or 74 in Nilssen, to enhance safety during lamp changing operations, etc.

(2) Agnew employs a novel lamp removal feedback inturruption scheme to stop the power oscilator in the event of removal of the lamp not installed in the "safety socket" cited above. The ohmic resistance of the lamp cathode or filiment is used to pass feedback current in Agnew - removal of the associated lamp removes feedback stopping the oscilator. In Agnew drawing Fig. 1, this cathode is identified as element 66 of lamp 54.

Inclusion of a similiar scheme in Nilssen could be accomplished by breaking conductor 19' or 23' in Nilssen Fig. 3, and inserting a lamp cathode in series, reCompleting the open feedback path left by the break. Such an inclusion in Nilssen, however, would involve an additional lamp power winding for isolation on transformer 67, as well as an increase in core area and turns ratio of feedback transformer 22'.

(3) As fluorscent lamps, like most gas discharge devices, posses negative resistance, some current limiting means is necessary in series with a lamp or lamps operating from voltage source power oscilators. Agnew has chosen a capacitor, element 50, for this purpose, whereas Nilssen has chosen an inductor, element 76, for this purpose. The choice of inductive or capacitive reactance for current limiting seems to be arbitrary as far as the lamps themselves are concerned, and as capacitors are often less expensive for a given reactance at high frequencies, Nilssen might be improved in terms of cost-effectiveness by this substitution.

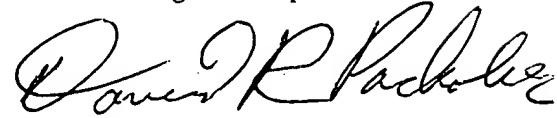
(4) The safety of the Nilssen circuit(s) may be improved by way of a thermal protector as employed by Agnew (element 14).

(5) Dimming means (element 58) is employed by Agnew, it would seem that identical means could be employed by Nilssen if dimming is desired.

(6) Agnew employs high voltage without lamp cathode preheat to initiate the discharge within the lamps, where as Nilssen employs cathode preheat and a lower voltage. The starting

technique of Agnew is to be favored when absolute lowest cost and simplicity of lamp fixture wiring are of paramount importance, whereas Nilssen's technique favors longer cathode and, consequently lamp, life. If cost were the primary driving factor, Nilssen could be improved by power transformer (element 67) auto-transformer modification to raise output voltage and facilitate high voltage starting.

I can think of no other teachings of Agnew that might improve Nilssen.

A handwritten signature in cursive script, reading "David R. Pacholok". The signature is written in dark ink and is positioned to the right of the typed name.

David R. Pacholok

*David R. Pacholok*

David R. Pacholok

STATE OF ILLINOIS)  
COUNTY OF KANE )ss  
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Sworn to and subscribed before me this 18th day of April, 1988.

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Notary Public

My Commission Expires: 12-30-91